Paper No. 14

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte THOMAS A. DAVID

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Appeal No. 1999-1170
Application No. 08/801,872

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ON BRIEF

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Before ABRAMS, CRAWFORD, and GONZALES, Administrative Patent Judges.

ABRAMS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1, 2 and 4-20, which are all of the claims pending in this application.

We REVERSE.

BACKGROUND

The appellant's invention relates to a precompressed radially soft drive coupling that damps vibrations. An understanding of the invention can be derived from a reading of exemplary claim 1, which appears in the appendix to the appellant's Brief.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Eksergian	1,868,818	Jul. 26, 1932
Schaefer	4,376,593	Mar. 15, 1983

The acknowledged prior art as set forth by the appellant in Figure 3 of the drawings and described on page 4 of the specification.

Claims 1, 2, 6-15 and 18-20 stand rejected under 35 U.S.C. § 103 as being unpatentable over the acknowledged prior art in view of Eksergian.

Claims 4, 5, 16 and 17 stand rejected under 35 U.S.C. § 103 as being unpatentable over the acknowledged prior art in view of Eksergian and Schaefer.

Rather than reiterate the conflicting viewpoints advanced by the examiner and the appellant regarding the above-noted rejections, we make reference to the Answer (Paper No.13) for the examiner's complete reasoning in support of the rejections, and to the Supplemental Brief (Paper No. 12) for the appellant's arguments thereagainst.

OPINION

In reaching our decision in this appeal, we have given careful consideration to the appellant's specification and claims, the applied prior art references, the respective positions articulated by the appellant and the examiner, and the guidance provided by our reviewing court. As a consequence of our review, we make the determinations which follow.

The appellant's invention is directed to drive couplings in which elastomers are incorporated to avoid transmission of a large amount of vibration across the coupling. The appellant describes three types of prior art couplings which he states utilize elastomers having radial spring rates that are ten to twenty times the design torque of the coupling, expressed in pound-inches. It is the appellant's opinion that the prior art couplings suffer from a number of shortcomings, which his invention overcomes. See specification, pages 1 and 2.

As manifested in independent claim 1, the appellant's invention is directed to a drive coupling having a magnitude of design torque level and comprising a housing including a first connector for attachment to one of the drive and driven shafts, a hub at least partially contained within the housing and including a second connector for attachment to another of the drive and driven shafts, and a radially soft elastomer member

> having a radial spring rate whose magnitude, when expressed in lb/in, is in the range of between one half and three times said magnitude of design torque level [of the coupling] expressed in lb-in, said elastomer member being bonded to one of said housing and said hub and having frictional engagement with the other of said housing and said hub to transmit torsional load therebetween; said radially soft elastomer member being axially precompressed between said housing and said hub increasing frictional engagement between with the other of said housing and said hub and producing additional radial softening of said elastomer . . . .

This claim stands rejected as being unpatentable over the acknowledged prior art illustrated in Figure 3 of the appellant's drawings in view of Eksergian. It is the examiner's position that all of the subject matter recited in claim 1 is disclosed in Figure 3 except for the recited spring rate magnitude and the requirement that the elastomer member be bonded to one of the power transmitting elements and in frictional engagement with the other. As to the required spring rate magnitude, the examiner is of the view that this feature would have been a matter of obvious engineering design to one of ordinary skill in the art, who is expected to routinely experiment with result effective variables so as to ascertain the optimum or workable ranges for a particular use (Answer, sentence bridging pages 3 and 4). With regard to the manner in which the elastomer members interface with the drive and driven shafts, the examiner looks to Eksergian, which he describes as teaching that couplings can utilize bonded or frictional interfaces or combinations thereof to transmit power, from which he concludes that it would have been obvious to modify the device shown in Figure 3 so that the elastomer is bonded to one of the drive elements and

frictionally engages the other. The appellant disputes the conclusions reached by the examiner, arguing that the coupling of Figure 3 does not teach radially loading the elastomer, a feature that is set forth in claim 1.

The test for obviousness is what the combined teachings of the prior art would have suggested to one of ordinary skill in the art. See, for example, In re Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). In establishing a prima facie case of obviousness, it is incumbent upon the examiner to provide a reason why one of ordinary skill in the art would have been led to modify a prior art reference or to combine reference teachings to arrive at the claimed invention. See Ex parte Clapp, 227 USPQ 972, 973 (Bd. Pat. App. & Int. 1985). To this end, the requisite motivation must stem from some teaching, suggestion or inference in the prior art as a whole or from the knowledge generally available to one of ordinary skill in the art and not from the appellant's disclosure. See, for example, Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1052, 5 USPQ2d 1434, 1439 (Fed. Cir.), cert. denied, 488 U.S. 825 (1988).

The rejection of claim 1 has several fatal deficiencies. First, we agree with the appellant that there is no evidence supporting the examiner's conclusion that even though not shown in prior art Figure 3 or admitted by the appellant, the elastomer member 33" experiences some degree of precompression when the adjacent plates 35" are drawn toward each other via the tightening bolts (Answer, page 7). In this regard, because in the

Figure 3 coupling the elastomer is bonded to both power transmitting elements, there would seem to be no need to precompress it, for there is no frictional coupling that would be enhanced by such action, nor has the examiner provided any other reason why precompression would be an advantage. In our view, this supports the conclusion that the elastomer in Figure 3 is not precompressed, and the examiner's position to the contrary is in error. This situation is not alleviated by further considering the teachings of Eksergian.

The second deficiency resides in the lack of suggestion to combine the teachings of Figure 3 and Eksergian in the manner proposed by the examiner, even if we were to agree that Eksergian teaches it was known to use combinations of bonded and frictional interfaces between the elastomer components of couplings and their driving and driven components. The mere fact that the prior art structure could be modified does not make such a modification obvious unless the prior art suggests the desirability of doing so. See In re Gordon, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984). We fail to perceive any teaching, suggestion or incentive which would have led one of ordinary skill in the art to replace one of the bonded attachments of the elastomer to the drive elements with a frictional interface, other than the hindsight afforded one who first viewed the appellant's disclosure. We reach this conclusion because such a modification would significantly alter the structure and the

operation of the Figure 3 coupling for no apparent reason, which would operate as a disincentive to the artisan to make the proposed change.

Finally, we find no basis for concluding that the stated relationship between the magnitude of the design torque level of the drive coupling and the radial spring rate of the elastomer component would have been an obvious matter of engineering design choice resulting from routine experimentation. None of the applied prior art references voices a concern for the problem solved by the appellant's invention, so there would appear to be no reason to experiment with radial spring rate in the first place, much less select the range required by the claim after doing so.

It is our opinion that the applied references fail to establish a prima facie case of obviousness with regard to the subject matter recited in independent claim 1, and we will not sustain the rejection. It follows the rejection of dependent claims 2, and 6-10 also is not sustained.

Independent claim 11 sets forth the invention in somewhat different terms, in that rather than relate the elastomer member to the coupling in terms of radial spring rate vs. magnitude of coupling design torque, it establishes the characteristics of the elastomer member in terms of precompressing it to a particular level to accomplish specific results. For essentially the same reasons as were expressed above with regard to claim 1, we conclude that a prima facie case of obviousness has not been established with regard to

the subject matter of claim 11. The rejection of independent claim 11 and dependent claims 12-15 and 18-20 is not sustained.

The addition of Schaefer in the rejection of dependent claims 4, 5, 16 and 17 fails to overcome the deficiencies discussed above with regard to the other rejections. The rejection of these claims also cannot be sustained.

SUMMARY

Neither of the rejections is sustained.

The decision of the examiner is REVERSED.

NEAL E. ABRAMS Administrative Patent Judge	)
MURRIEL E. CRAWFORD Administrative Patent Judge	) BOARD OF PATENT) APPEALS) AND) INTERFERENCES
JOHN F. GONZALES Administrative Patent Judge	)

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